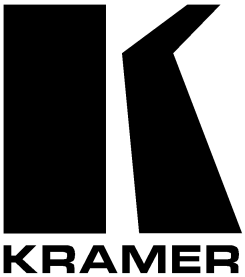
Kramer Electronics, Ltd.



USER MANUAL

Model:

VS-4x4FW

4x4 FireWire Switcher

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1 Introduction

Welcome to Kramer Electronics (since 1981): a world of unique, creative and affordable solutions to the infinite range of problems that confront the video, audio and presentation professional on a daily basis. In recent years, we have redesigned and upgraded most of our line, making the best even better! Our 500-plus different models now appear in 8 Groups[1], which are clearly defined by function.

Congratulations on purchasing your Kramer **VS-4x4FW** *4x4 FireWire Switcher*. This product is ideal for:

- Small digital video editing systems
- Data switching systems

The package includes the following items:

- **VS-4x4FW**
- This user manual[2]

2 Getting Started

We recommend that you:

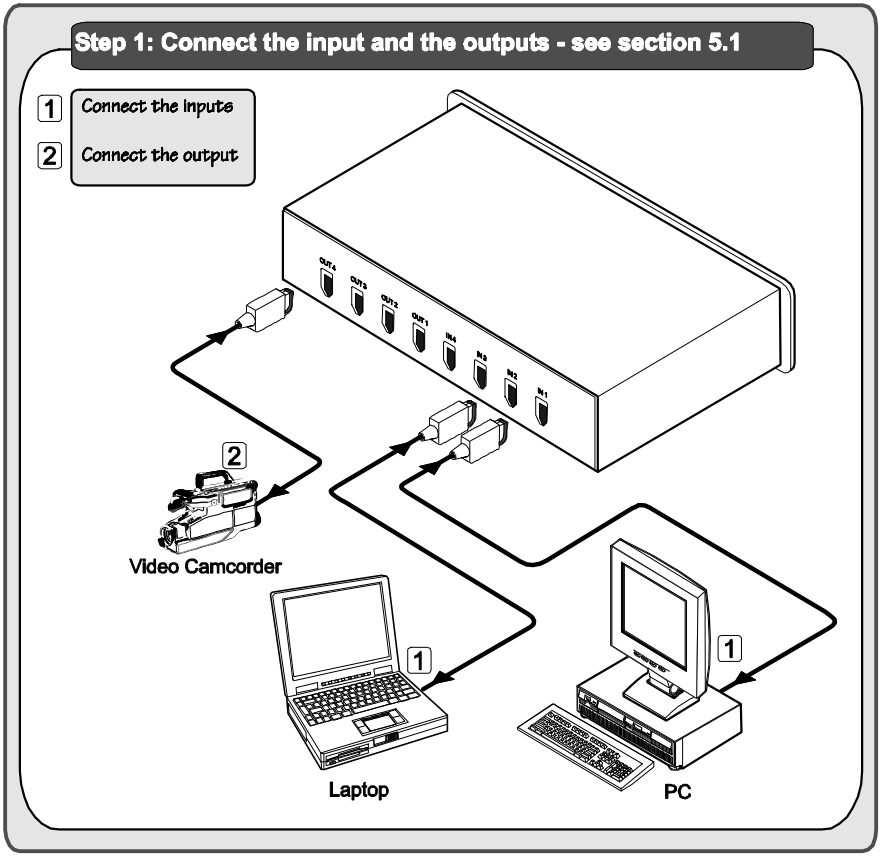
- Unpack the equipment carefully and save the original box and packaging materials for possible future shipment
- Review the contents of this user manual

2.1 Quick Start

This quick start chart summarizes the basic setup and operation steps.

1 GROUP 1: Distribution Amplifiers; GROUP 2: Video and Audio Switchers, Matrix Switchers and Controllers; GROUP 3: Video, Audio, VGA/XGA Processors; GROUP 4: Interfaces and Sync Processors; GROUP 5: Twisted Pair Interfaces; GROUP 6: Accessories and Rack Adapters; GROUP 7: Scan Converters and Scalers; and GROUP 8: Cables and Connectors

2 Download up-to-date Kramer user manuals from the Internet at this URL: http://www.kramerelectronics.com/manuals.html


Step 1: Connect the input and the outputs - see section 5.1
1 Connect the Inpute
2 Connect the output
2
Video Camcorder
1
Laptop
1
PC

3 Overview

FireWire is a serial bus standard[1] that enables quick universal interfacing between video and computer hardware items[2]. *FireWire* hubs let you:

- Connect more items than you otherwise could[3]
- Extend the distances

FireWire is simple to use and operates independently of the host system.

In addition, *FireWire* supports:

- Plug and Play[4]
- Hot swapping[5]
- Isochronous[6] as well as asynchronous applications

To achieve the best performance:

- Connect only good quality connection cables, thus avoiding interference, deterioration in signal quality due to poor matching, and elevated noise- levels (often associated with low quality cables)
- Avoid interference from neighboring electrical appliances and position your Kramer **VS-4x4FW** away from moisture, excessive sunlight and dust

Note that constant plugging and unplugging of FireWire equipment can result in permanent damage to sensitive equipment due to ESD (electrostatic discharge)[7]

1 Originally developed by Apple™ and published as IEEE 1394 by the Institute of Electrical and Electronics Engineers

2 Hardware items include digital cameras, computers, printers, VCRs, CD-ROMs, hard disks, scanners and graphic cards

3 A computer only has limited ports available

4 Configures automatically without any driver. Whenever a device is added or removed the 1394 bus re-enumerates.

5 You can connect and disconnect inputs and outputs dynamically, without having to restart the PC or cycle power

6 Video / audio applications require constant transfer rates, which the serial bus provides by supporting isochronous transfers

7 It is recommended to use the Kramer PT-1FW, which is a line protector for FireWire signals

4 Your FireWire Switcher

The high quality **VS-4x4FW** *4x4 FireWire Switcher* is a mechanical 4x4 switcher for *FireWire* signals, using 6-pin *FireWire* connectors. In particular, the **VS-4x4FW**:

- Is designed for applications requiring a compact desktop unit for routing *FIRE WIRE* signals[1] between any one of 4 sources to any one of 4 acceptors[2]
- Is ideal for high speed data signals up to 400 MB/s
- With its high quality switching components and carefully designed circuits, provides excellent isolation between inputs
- With its unpowered design is advantageous for applications in which various regulatory compliances would otherwise be required

Figure 1 and Table 1 define the **VS-4x4FW** *4x4 FireWire Switcher*:

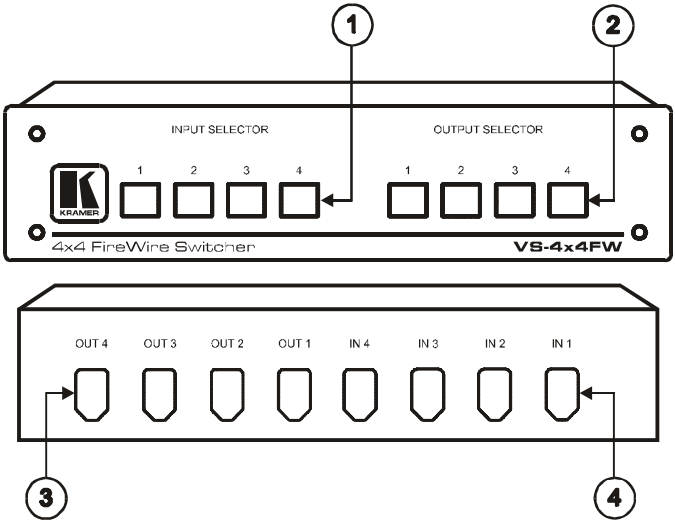


Figure 1: VS-4x4FW 4x4 FireWire Switcher

Table 1: VS-4x4FW 4x4 FireWire Switcher Features

#	Feature	Function
1	*INPUT SELECTOR* Buttons	Selects a source from 1 to 4
2	*OUTPUT SELECTOR* Buttons	Selects an acceptor from 1 to 4
3	*OUT* 6-pin Connectors	Connects to the acceptors from 1 to 4
4	*IN* 6-pin Connectors	Connects to the sources from 1 to 4

1 For example, digital video or data

2 The VS-4x4FW can only provide one signal path at any given time (one active crosspoint). It cannot distribute a signal to multiple outputs simultaneously

5 Using the FireWire Switcher

Sections 5.1 and 5.2 describe how to connect and how to operate your **VS-4x4FW** *4x4 FireWire Switcher*, respectively.

5.1 Connecting the FireWire Switcher

You can connect the **VS-4x4FW** *4x4 FireWire Switcher* to up to 4 sources and to up to 4 acceptors, using 1394 cables with 6 pin connectors.

For example, to connect the **VS-4x4FW** *4x4 FireWire Switcher* to 2 sources (a PC and a laptop) and to one acceptor (a digital video camera), as Figure 2 illustrates, do the following:

1. Connect a PC to the IN 1 port and connect a laptop to the IN 2 port.
2. Connect the OUT 4 port to the digital video camera.

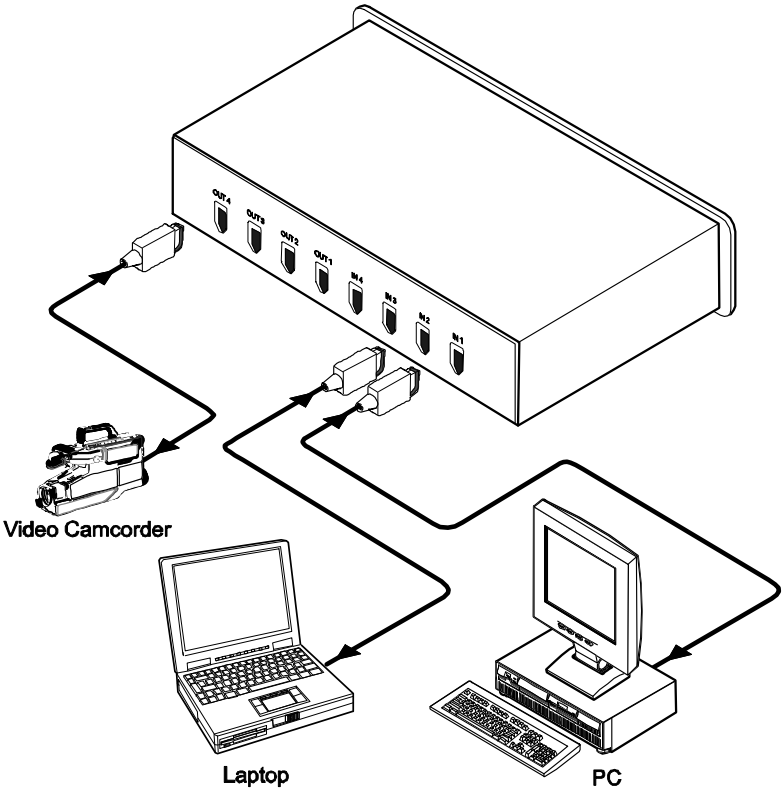


Figure 2: Connecting the VS-4x4FW 4x4 FireWire Switcher

5.2 Operating the FireWire Switcher

You can route any one of 4 sources to any one of 4 acceptors when operating your **VS-4x4FW** *4x4 FireWire Switcher*.

For example, to route the signal from the PC to the digital video camera, as Figure 2 illustrates, do the following:

- Press the INPUT SELECTOR IN 1 button
- Press the OUTPUT SELECTOR OUT 4 button
  The signal from the PC routes to the digital video camera

For example, to route the signal from the laptop to the digital video camera, as Figure 2 illustrates, do the following:

- Press the INPUT SELECTOR IN 3 button
- Press the OUTPUT SELECTOR OUT 4 button
  The signal from the laptop routes to the digital video camera

6 Technical Specifications

Table 2: Technical Specifications of the VS-4x4FW 4x4 FireWire Switcher

Inputs:	4 firewire, 6-pin connectors
Outputs:	4 firewire, 6-pin connectors
Switching System:	Mechanical, break-before-make
Compatibility:	Up to 400 MB/s
Dimensions:	18.8cm x 10.2cm x 4.4cm (7.4" x 4" x 1.7"), W, D, H.
Weight:	0.70 kg. (1.55 lbs.) approx.
Options:	19" rack adapter RK-81

LIMITED WARRANTY

Kramer Electronics (hereafter *Kramer*) warrants this product free from defects in material and workmanship under the following terms.

HOW LONG IS THE WARRANTY

Labor and parts are warranted for seven years from the date of the first customer purchase.

WHO IS PROTECTED?

Only the first purchase customer may enforce this warranty.

WHAT IS COVERED AND WHAT IS NOT COVERED

Except as below, this warranty covers all defects in material or workmanship in this product. The following are not covered by the warranty:

1. Any product which is not distributed by Kramer, or which is not purchased from an authorized Kramer dealer. If you are uncertain as to whether a dealer is authorized, please contact Kramer at one of the agents listed in the Web site www.kramerelectronics.com.
2. Any product, on which the serial number has been defaced, modified or removed.
3. Damage, deterioration or malfunction resulting from:
   i) Accident, misuse, abuse, neglect, fire, water, lightning or other acts of nature
   ii) Product modification, or failure to follow instructions supplied with the product
   iii) Repair or attempted repair by anyone not authorized by Kramer
   iv) Any shipment of the product (claims must be presented to the carrier)
   v) Removal or installation of the product
   vi) Any other cause, which does not relate to a product defect
   vii) Cartons, equipment enclosures, cables or accessories used in conjunction with the product

WHAT WE WILL PAY FOR AND WHAT WE WILL NOT PAY FOR

We will pay labor and material expenses for covered items. We will not pay for the following:

1. Removal or installations charges.
2. Costs of initial technical adjustments (set-up), including adjustment of user controls or programming. These costs are the responsibility of the Kramer dealer from whom the product was purchased.
3. Shipping charges.

HOW YOU CAN GET WARRANTY SERVICE

1. To obtain service on you product, you must take or ship it prepaid to any authorized Kramer service center.
2. Whenever warranty service is required, the original dated invoice (or a copy) must be presented as proof of warranty coverage, and should be included in any shipment of the product. Please also include in any mailing a contact name, company, address, and a description of the problem(s).
3. For the name of the nearest Kramer authorized service center, consult your authorized dealer.

LIMITATION OF IMPLIED WARRANTIES

All implied warranties, including warranties of merchantability and fitness for a particular purpose, are limited in duration to the length of this warranty.

EXCLUSION OF DAMAGES

The liability of Kramer for any effective products is limited to the repair or replacement of the product at our option. Kramer shall not be liable for:

1. Damage to other property caused by defects in this product, damages based upon inconvenience, loss of use of the product, loss of time, commercial loss; or:
2. Any other damages, whether incidental, consequential or otherwise. Some countries may not allow limitations on how long an implied warranty lasts and/or do not allow the exclusion or limitation of incidental or consequential damages, so the above limitations and exclusions may not apply to you.

This warranty gives you specific legal rights, and you may also have other rights, which vary from place to place.

NOTE: All products returned to Kramer for service must have prior approval. This may be obtained from your dealer.

This equipment has been tested to determine compliance with the requirements of:

EN-50081:	"Electromagnetic compatibility (EMC); generic emission standard. Part 1: Residential, commercial and light industry"
EN-50082:	"Electromagnetic compatibility (EMC) generic immunity standard. Part 1: Residential, commercial and light industry environment".
CFR-47:	FCC Rules and Regulations: Part 15: "Radio frequency devices Subpart B Unintentional radiators"

CAUTION!

- Servicing the machines can only be done by an authorized Kramer technician. Any user who makes changes or modifications to the unit without the expressed approval of the manufacturer will void user authority to operate the equipment.
- Use the supplied DC power supply to feed power to the machine.
- Please use recommended interconnection cables to connect the machine to other components.

For the latest information on our products and a list of Kramer distributors, visit our Web site: www.kramerelectronics.com, where updates to this user manual may be found.
We welcome your questions, comments and feedback.

Safety Warning:
Disconnect the unit from the power supply before opening/servicing.

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P/N: 2900-002055 REV 2